



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,759	05/14/2001	Michael B. Ball	4589US (99-1151)	8899
24247	7590	08/11/2004	EXAMINER	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			HARAN, JOHN T	
			ART UNIT	PAPER NUMBER
			1733	
DATE MAILED: 08/11/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/854,759	BALL ET AL.
	Examiner	Art Unit
	John T. Haran	1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 76-84 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-13,15,17-23,25,27-33,35,37-45,47,49-51,53,55,and56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims pending in the application are 1,2,4,6-13,15,17-23,25,27-33,35,37-45,47,49-51,53,55,56 and 76-84.

DETAILED ACTION

1. This Office Action is in response to the remarks filed on 7/16/04. The rejection of claims 76-84 under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (U.S. Patent 6,342,434) in view of Satoh (U.S. Patent 6,338,980) is withdrawn in view of Applicant's arguments. The other rejections are maintained.

Claim Objections

2. Claims 76 and 77 are objected to because of the following informalities: In claim 76 it appears the phrase "said backing of said tape has a substantially planar surface" should read - - said backing of said tape having a substantially planar surface - -. Also in claim 76 it appears the phrase "said removing wafer material" should read - - removing said wafer material - -. In addition in claim 77, it appears the phrase "further comprising" should not have been previously deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1733

4. Claims 1, 2, 4, 6, 9, 23, 25, 27, 30, 33, 35, 37, 40, 43, 44, 45, 47, 49, 51, 53, and 55 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyamoto et al (U.S. Patent 6,342,434).

The text of the rejection can be seen in Paragraph 3 of the office action mailed on 4/14/04.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 7-13, 15, 17-22, 28-32, 38-42, 50, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (U.S. Patent 6,342,434).

The text of the rejection can be seen in Paragraph 5 of the office action mailed on 4/14/04.

Response to Arguments

7. Applicant's arguments filed 7/16/04 have been fully considered but they are not persuasive with regards to the rejection of the claims as being anticipated by Miyamoto under 102(e) or obvious over Miyamoto under 103(a).

Regarding the 102(e) rejection, Miyamoto does anticipate the claims. Applicant argue that the adhesive in the invention is not required to contact the "actual" surface of the wafer, whereas Miyamoto requires that the adhesive be in

Art Unit: 1733

contact with the “actual” surface of the wafer. This argument is not persuasive because independent claims 1, 23, 33, 45, and 51 do not exclude the adhesive contacting the “actual” surface of the wafer. For example claim 1 requires, “attaching a tape having an adhesive and a backing on **at least a portion of said surface** having bumps thereon of said wafer”. This limitation clearly reads on the adhesive contacting the entire surface (bumps and “actual”) of the wafer as taught in Miyamoto. The other independent claims have similar limitations which read on the adhesive contacting the entire surface (bumps and “actual”) of the wafer as taught in Miyamoto. Therefore Miyamoto does anticipate the claims.

Regarding the 103(a) rejection rendering the claims obvious under Miyamoto, Applicant has the same argument that the adhesive in the invention is not required to contact the “actual” surface of the wafer, whereas Miyamoto requires that the adhesive be in contact with the “actual” surface of the wafer. However, claim 12 requires “attaching an adhesive to **said surface** of said adhesive”. This limitation does not exclude the adhesive contacting the entire surface (bumps and “actual”) of the wafer and in fact reads on contacting the entire surface (bumps and “actual”) of the wafer. Applicant’s argument is not found persuasive. Miyamoto teaches contacting the entire surface (bumps and “actual”) of the wafer with adhesive and therefore meets the conditions for obviousness.

Allowable Subject Matter

8. Claims 76-84 are allowed provided the grammatical corrections noted above are made.

9. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to suggest the claimed method of attaching a wafer having bumps on a surface thereof, particularly the step of attaching a tape having an adhesive and a backing on at least a portion of said surface having bumps thereon of said wafer, said tape contacting about 10% to about 60% of the surface area of said bumps.

As noted in Applicant's arguments filed on 7/16/04, Miyamoto et al teaches that the adhesive contacts the entire surface area of the bumps and the passivation film on the surface of the wafer, which prevents warpage of the wafer during thinning from the release of the internal stresses in passivation film. While Satoh does clearly teach having an adhesive tape wherein the adhesive only contacts 10% to 60% of the surface area of the bumps (See Figure 1C), there is no motivation to modify Miyamoto to have the adhesive only contact 10% to 60% of the surface area of the bumps because then the adhesive would not contact the passivation film and the wafer would warp.

It is also noted that while Satoh does clearly teach having an adhesive tape wherein the adhesive only contacts 10% to 60% of the surface area of the bumps (See Figure 1C), the thinning process of Satoh results in the formation of separate dies without the need to cut the wafer after the thinning step because grooves were formed in the wafer prior to thinning and the thinning step removed

Art Unit: 1733

enough material to reach the grooves leaving separate dies. There is no motivation to modify the method of Satoh to thin the wafer and then cut the wafer into individual dies.

10. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

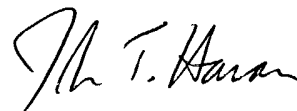
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John T. Haran** whose telephone number is

Art Unit: 1733

(571) 272-1217. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John T. Haran
Examiner
Art Unit 1733